

REMARKS

In a final Office Action dated February 03, 2004, all pending claims 1-29 were rejected on prior art grounds.

On April 09, 2004, Applicant's representative conducted an Interview with the Examiner in which the Office Action was discussed. Particularly, the rejected claims and the teaching of the primary relied-upon reference, U.S. Patent No. 6,304,222 to Smith, were discussed. In the Interview, Applicant's representative suggested a potential claim amendment which the Examiner indicated may define the claims over Smith and the remaining cited references. See, Interview Summary of April 14, 2004 (Paper No. 9).

In reply to the final Office Action and pursuant to the Examiner Interview, Applicant files a Request for Continued Examination (RCE) under 37 C.F.R. §1.114, enclosed herewith. The present Submission accompanies the RCE in satisfaction of §1.114(a),(c). Herein, claims 1, 4, 5, 11, 14, 17, and 18 are rewritten to better clarify Applicant's invention and claims 13, 19, and 23 are cancelled. The application is now in condition for allowance as the claims are not anticipated nor rendered obvious by any of the cited art references, taken singularly or in combination.

Applicant now addresses the Examiner outstanding rejections in turn.

Claims 1-4, 6, 10, and 20 are rejected under 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 6,304,222 to Smith et al. The Examiner essentially contends that Smith teaches each and every limitation of the rejected claims. However, Applicant respectfully submits that the claims as rewritten herein include features and limitations which are not taught or even suggested by Smith. Thus, the outstanding novelty rejection is improper and may not be maintained.

Turning briefly to claim 1, a communication device is recited comprising, *inter alia*, a housing enclosing a loudspeaker and at least part of an antenna, the loudspeaker comprising an acoustic resonance chamber delimited by an acoustic resonance chamber wall and the antenna comprising at least one electromagnetic resonance chamber delimited by an electromagnetic resonance chamber wall, where the acoustic resonance chamber is completely or partly located within the electromagnetic resonance chamber such that said acoustic resonance chamber wall is disposed, at least partly, within the electromagnetic resonance chamber. At least these limitations of claim 1 (particularly those highlighted) are not found implicitly or explicitly in the teaching of Smith.

Smith teaches a radio communications handset 1 incorporating an internal antenna arrangement 2, as shown in Figure 1(a). The handset 1 includes a speaker unit 10 having a volume of free space V formed thereabout. The free space V is particularly described as being utilized for “acoustic enhancement”. Col. 3, lines 50-65. The antenna arrangement 2 consists of a ground plane 4 and a radiating element 3 extending from a radio frequency feed point 8. *Id.* The radiating element 3 is specifically arranged in a curved manner to fit around the peripheral edges of the acoustic enhancing volume of free space V. *Id.* Portions of the antenna arrangement 2 (the radiating element 3 and ground plane 4) are disposed in the acoustic volume V to promote miniaturization of the hand set 1. Col. 4, lines 22-25.

Firstly, Applicant submits that Smith fails to teach or suggest “an electromagnetic resonance chamber delimited by an electromagnetic resonance chamber wall”, as recited in the present claim 1. Despite the Examiner’s holding to the contrary, Applicant respectfully submits that Smith does not at all disclose an electromagnetic resonance chamber and thus necessarily does not disclose an electromagnetic chamber wall.

As mentioned above, the free space V within the handset 1 of Smith is specifically and solely dedicated to *acoustic enhancement* of the speaker unit 10. The space V does not serve as an electromagnetic resonance chamber, as recited in Applicant’s claim 1. In fact, Smith does not teach or even suggest that the handset 1 includes a chamber for

electromagnetic resonance. To the contrary, the radiating element 3 of the antenna arrangement 2 is disposed around the volume V for the purpose of effecting miniaturization of the handset 1. At page 6 of the Office Action, the Examiner presumes that “the electromagnetic resonance [of the antenna arrangement 2] would behave differently when the chamber “V” is removed...therefore the acoustic chamber (V) also serves as an electromagnetic resonance chamber...” However, this is merely an assumption and is not necessarily true. As mentioned above, the radiating element 3 is not even disposed within the volume V, but instead extends around the periphery of the volume V. Thus, it is uncertain what, if any, effect the removal of the acoustic enhancement volume V from the handset 1 would have upon the function of the radiating element 3.

For at least these reasons, Applicant concludes that Smith does not disclose, implicitly or explicitly, an electromagnetic resonance chamber delimited by an electromagnetic resonance chamber wall, as recited in claim 1.

Applicant further submits that Smith fails to teach or suggest an “acoustic resonance chamber delimited by an acoustic resonance chamber wall...wherein the acoustic resonance chamber is completely or partly located within the electromagnetic resonance chamber such that said acoustic resonance chamber wall is disposed, at least partly, within the electromagnetic resonance chamber”, as recited by claim 1.

As mentioned above, Smith does not disclose an electromagnetic resonance chamber, as recited in the rejected claims. Instead, Smith teaches a volume V for acoustic enhancement and an antenna arrangement 2 consisting of a radiating element 3 and a ground plane 4, both extending around a periphery of the volume V. Thus, Smith clearly does not teach an acoustic resonance chamber completely or partly located *within an electromagnetic resonance chamber*, as required by claim 1. Further, it is noted that Smith does not explicitly teach a *chamber wall* delimiting the volume of free space V. The reference simply discloses “an adjacent volume of free space extending behind the speaker unit...” Col. 3, lines 50-58. Smith does not disclose an acoustic resonance chamber wall

and certainly does not disclose such chamber wall “disposed...within the electromagnetic resonance chamber”, as recited in claim 1.

For at least these reasons, Applicant concludes that Smith does not disclose, implicitly or explicitly, an acoustic resonance chamber delimited by an acoustic resonance chamber wall where the wall is disposed at least partly within an electromagnetic resonance chamber, as recited in claim 1.

Accordingly, all of the limitations of claim 1 are not met implicitly or explicitly by the Smith reference. Thus, the outstanding §102 novelty reject of claim 1 is improper and may not be maintained; reconsideration and withdrawal thereof is respectfully requested. Claim 1 is not further rejected or objected to and is thus allowable over the cited references.

Claims 2-4, 6, 10, 20, and 24-26 all variously depend from allowable claim 1 and are thus correspondingly allowable; reconsideration and withdrawal of the relevant outstanding §102 rejections is respectfully requested.

Claims 5, 7-9, 11-19, 21-23, and 27-29 are rejected under 35 U.S.C. §103(a) as being obvious in view of Smith as combined with U.S. Patent No. 5,953,414 to Abraham.

Claims 5 and 7-9 variously depend from allowable claim 1 and are thus correspondingly allowable; reconsideration and withdrawal of the pertinent outstanding obviousness rejections is respectfully requested.

Claims 13, 19, and 23 are herein cancelled, thus the outstanding rejections thereof are rendered moot.

Independent claims 11, 17, and 18 each generally recite communication device comprising, *inter alia*, a housing enclosing a loudspeaker and at least a part of at least one antenna, the loudspeaker comprising an acoustic resonance chamber for resonating a sound emitted by the loudspeaker, the antenna comprising an electromagnetic resonance chamber, where the acoustic resonance chamber is completely or partly located within the

electromagnetic resonance chamber, where the loudspeaker and the acoustic resonance chamber are connected by at least one unimpeded acoustic channel. At least these limitations of claims 11, 17, and 18 (particularly those highlighted) are not found implicitly or explicitly in the teaching of Smith as combined with Abraham.

As discussed above in detail, Smith does not teach or suggest an electromagnetic resonance chamber nor an acoustic resonance chamber completely or partly located within the electromagnetic resonance chamber, as recited by claims 11, 17, and 18. Abraham does not remedy the deficiencies of Smith in this regard. Abraham is directed to a piezo-electric speaker capsule for a telephone handset. The reference makes no disclosure concerning an antenna nor any type of electromagnetic resonance chamber. Thus, Applicant respectfully submits that neither Smith nor Abraham teach the electromagnetic resonance chamber and acoustic chamber disposed therein, as recited in claims 11, 17, and 18.

Additionally, Applicant submits that neither Smith nor Abraham teach or suggest a loudspeaker and an acoustic resonance chamber (for resonating a sound emitted by the acoustic resonance chamber) connected by an unimpeded acoustic channel, as recited by claims 11, 17, and 18. The Examiner admits that Smith does not teach a speaker connected to an acoustic chamber. See, Office Action at pages 3-5. For this claim limitation, the Examiner relies upon Abraham. At page 3 of the Office Action, the Examiner asserts that the Abraham teaches a speaker 3, 4 connected to an acoustic chamber through a circuit board 11 by an acoustic coupling means 7, 8. The Examiner describes the acoustic chamber as being the space above the circuit board 11 as shown in Figure 4. This space, however, is not “an acoustic resonance chamber for resonating a sound emitted by the loudspeaker”, as recited by claims 11, 17, and 18. To the contrary, this space is ‘dead space’ the volume of which Abraham ultimately seeks to reduce by disposing the circuit board 11 directly on a wall 18. Col. 3, lines 20-25. Additionally, the reference numerals 7, 8 of Abraham indicate a hole covered by a fabric. The fabric 8 is designed to allow micro-leaks of sound to pass through the wall 18 via the hole 7 in order to *attenuate* the resonant peak. Col. 3, lines 8-10 and 38 through col. 4, line 2. That is, the volume of space above

the circuit board 11 is for the attenuation of sound **not** for “resonating a sound...”, as required by claims 11, 17, and 18. Further, as mentioned, the hole 7 is impeded by the fabric 8. Therefore, Abraham clearly does not disclose the “unimpeded acoustic channel” of claims 11, 17, and 18.

Thus, for at least these reasons Abraham and Smith, taken singularly or in combination, fail to teach or suggest all of the limitations of claims 11, 17, and 18. Accordingly, *prima facie* obviousness does not exist concerning claims 11, 17, and 18; reconsideration and withdrawal of the outstanding §103 rejections is respectfully requested. Since claims 11, 17, and 18 are not further rejected or objected to, these claims are allowable to Applicant.

The remaining claims 11, 12, 14-18, 21, 22, and 27-29 all variously depend from one of allowable claims 11, 17, and 18. Therefore, these claims are correspondingly allowable; withdrawal of the relevant outstanding obviousness rejections is requested.

All of the outstanding rejections are herein traversed or overcome by the present Submission. Claims 1-29 are now allowable to Applicant. No new matter is presented by way of the amendments made herein as ample support is found throughout the originally filed specification, claims, and drawings.

The present Submission complies with the requirements of 37 C.F.R. §1.114(a),(c). A formal Request for Continued Examination and the fee required set forth in §1.17(p) are timely provided herewith.

Applicant thus respectfully requests withdrawal of all rejections and prompt issuance of a Notice of Allowance.

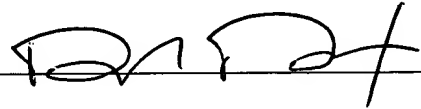
The Examiner is invited to contact Applicant’s attorneys at the below-indicated telephone number regarding this Submission or otherwise concerning the present application.

Applicant hereby petitions for any necessary extension of time required for consideration and entry of the present Submission.

Please charge any required fees for this Submission, or otherwise concerning the present application, to Deposit Account No. 06-1130 maintained by Applicant's attorney.

Respectfully submitted,

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Date: JUNE 22-2004